



**INTERNATIONAL PRESTRESSED HOLLOW CORE ASSOCIATION**

## **SAFETY ISSUES ON SITE**

24th - 26th September 2003

IPHA Technical Seminar

**LEUVEN - Belgium**



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Safety Issues on Site

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## Safety Issues on Site

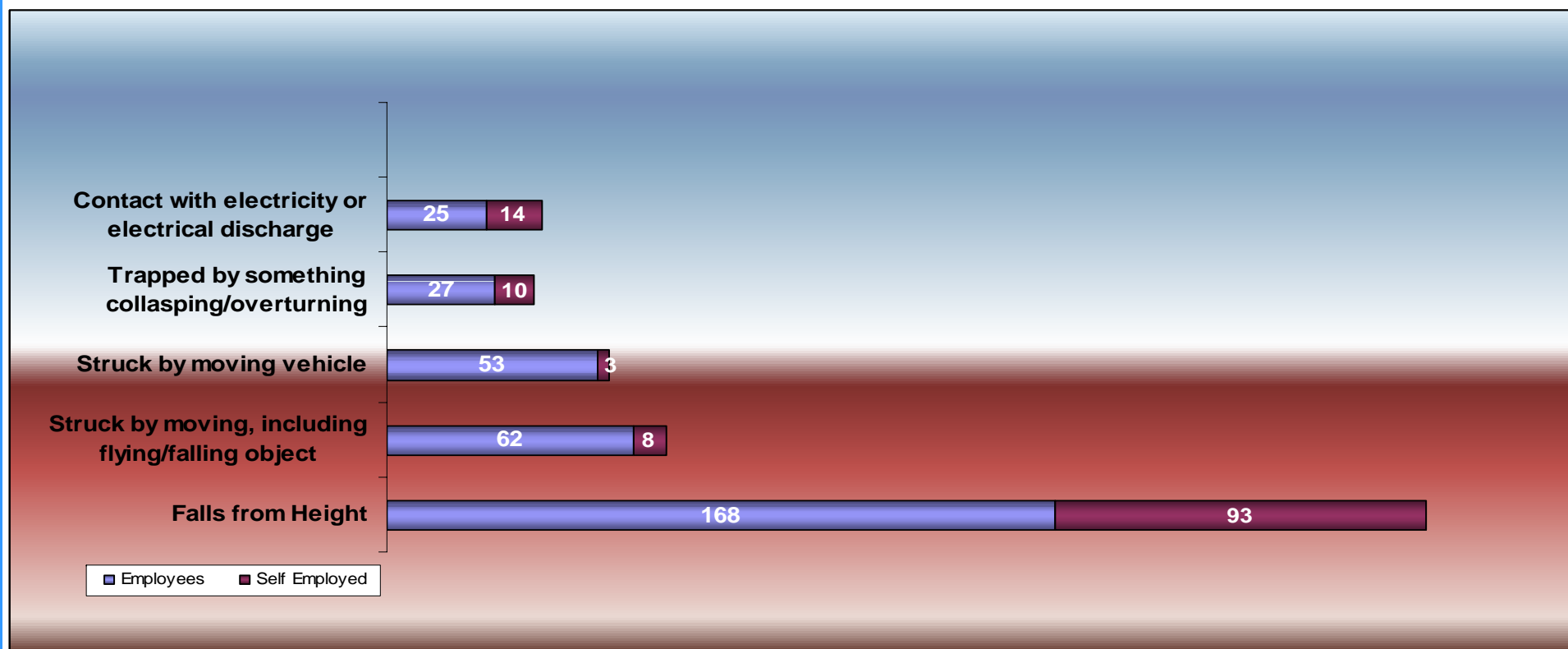
### BRITISH INDUSTRY

- UK 2000/2001    292 Fatalities
- UK 2001/2002    249 Fatalities
- The three most common kinds of accidents:
  - Falls from a height (27%)
  - Struck by moving/flying object (17%)
  - Struck by a moving vehicle (16%)



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### Number of fatal injuries to workers in Construction by kind 1996/7 - 2001/02p





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### Safety Issues on Site

#### BRITISH CONSTRUCTION INDUSTRY

- Accounts for one third of all deaths that occur at work
- 4,000 serious injuries
- 11,000 over 3 day lost time injuries



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### Safety Issues on Site

#### BRITISH CONSTRUCTION INDUSTRY

- 2001/2002 25% reduction in fatalities
- 79 compared with 105
- 2001/2002 falls from height 37 fatalities
- Improved performance still accounts for more than one worker per week
- Personal tragedy
- Poor industry image



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## Safety Issues on Site

### EUROPEAN INDUSTRY SAFETY PERFORMANCE

- 1996: 5500 fatalities due to accidents at work
- 4 in 1000 workers involved in accidents that year
- 3 day lost time accidents in the EU 3x higher for men than women
- Young people aged 18 - 24 is 35% higher than the EU average



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### Safety Issues on Site

#### E.U. CONSTRUCTION INDUSTRY FATAL ACCIDENTS

Country	1999	1998	1997	1996
European Union (15 countries)	1266	1330	1361	1346
Belgium	30	18	32	32
Denmark	10	12	12	13
Federal Republic of Germany	221	233	248	286
Finland	9	10	13	6
France	172	226	226	224
Ireland	14	15	15	7
Italy	289	293	272	276
Netherlands	26	30	30	13
Norway	6	11	2	
Portugal	83	96	96	76
Spain	244	241	245	238
Sweden	6	9	12	12
UK	81	65	80	90

(figures supplied Eurostat, Statistics in focus)





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### Safety Issues on Site

- UK legislation requires companies to protect workers at height
- Legislation: nothing has changed
- Increased pressure due to availability of protection systems



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## Safety Issues on Site



Active fall protection system



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### Safety Issues on Site

- Government and the Health & Safety Executive (HSE) under pressure to improve construction industry performance
- Only a matter of time before Flooring Industry targeted
- Installation of flooring requires
  - pre-planning
  - safe means of access
  - adequate measures to prevent falls
- Obvious target for safety performance improvement



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### Safety Issues on Site

- Precast Flooring Federation (PFF) adopted a pro-active approach to working at heights
- Joint initiative with H.S.E
- Implement passive fall protection and other measures by June 2001.

In separate pre-emptive strikes H.S.E issued national prohibition/improvement notices to several major companies, including Bison.



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## Safety Issues on Site

### H.S.E's Observations

- Lack of adequate method statements
- Site congestion & poor lifting techniques
- Safety Harnesses not worn or clipped on
- Lifting out of sequence
- Beam clamps not available
- Inadequate clearance between floors to allow, safety harnesses to work
- Lack of edge protection to perimeter walls
- Shortfalls in training



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## Safety Issues on Site

### Construction (Health, Safety and Welfare) Regulations 1996 (CHSW)

Lays down a hierarchy of control measures to be taken **if working at height cannot be avoided.**

- Safe working platform, with guard rails and toe boards
- Passive fall arrest system
- Active work restraint system
- Active fall arrest system



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## Safety Issues on Site

### Elimination of risk

- Avoidance
- Review design process
- Reduce need for working at height
- Simplify design
- Increased prefabrication
- In some tasks working at height is inevitable



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## Safety Issues on Site

### Bison Concrete Products Ltd

#### Company Wide Safety Review

- Review of site method statements
- Review of installer training requirements
- Passive fall options





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## Safety Issues on Site

### Site Specific Method Statements

- Portable computer support
- Interactive software for site specific method statement generation
- Digital camera



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## Safety Issues on Site

### Training Needs

- Training review
- Training/Programme
- Audit & Review



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## Safety Issues on Site

### Passive Fall Options

#### National Review

- Safety Decking
- Safety Netting
- Crash Decks
- AirMats



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## Safety Issues on Site



Safety Decking



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## Safety Issues on Site

### OPTION

#### Safety Decking

A lightweight plastic platform system supported on plastic props.

#### Advantage

- Can be used as a temporary working platform
- Usually installed the day before the erection.
- Highly visible.

#### Disadvantage

- All blockwork must be erected at least 48 hours prior to erection to provide lateral stability to the system.
- Transportation of the rigid plastic components
- Requires walls to retain the system.
- Floor area must be firm and level
- Extends time on site.



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## Safety Issues on Site

### OPTION

#### Crash Decks

Scaffolding/timber boards

Bespoke purpose made

#### Advantage

- Excellent working platform

#### Disadvantage

- Expensive
- Time consuming
- Bulky material for delivery/handling





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## Safety Issues on Site



## Safety Netting



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## Safety Issues on Site

### OPTION

#### Safety Netting

##### Advantage

- Erected immediately below the working area
- Large area can be protected
- Can be erected up to 6m above floor level

##### Disadvantage

- Needs rescue/ retrieval method
- Subject to UV damage
- Chains snag in net
- Installed the day before, removed the day after floor installation





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## Safety Issues on Site







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## Safety Issues on Site





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## Safety Issues on Site



AirMat's with side netting







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## Safety Issues on Site

### OPTION

#### AirMat

#### Advantage

- Quick and easy to install and de-install on day of erection
- Can be carried and erected by the installation gang
- Totally flexible/adaptable to any internal configuration

#### Disadvantage

- If wrong size mats are selected damage can be caused to the blockwork structure
- Air pumps can run out of fuel
- Unsuitable for uneven ground with projections



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## Bison Group Decision

- AirMat
- Safety Nets



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## Safety Issues on Site

### Group Commitment

- Capital Investment
- Equip all installation teams
- Train all installation teams
- Source larger vehicles to accommodate safety equipment
- Target national coverage by end of 2001
- Contracts management trained to assess safety net installations



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## Safety Issues on Site





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## Safety Issues on Site

### Contractors Obligations

- Need to educate
- Clear working area
- Obstructions removed
- Perimeter edge protection





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## Safety Issues on Site

### Benefits

- Working area protection
- Autonomy of crews
- Flexibility of systems
- Easy to install
- Economic



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## Safety Issues on Site

### Product Development

- Harness & Clamps
- Innovative Solutions
- Parapet Bags
- Wedge Shaped Bags
- Safety Solutions utilising Encast Lifters



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● Parapet bags



● Harness & Clamps



● Validation Testing



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Safety Issues on Site

TARGET

TO ELIMINATE  
ALL SERIOUS INJURIES  
DUE TO FALLS FROM HEIGHT